United States Department of the Interior

NATIONAL PARK SERVICE
Pacific West Region
333 Bush Street, Suite 500
San Francisco, California 94104-2828

IN REPLY REFER TO

L7617 (PWRO-PP)

13 JUN 2013

Memorandum

To: Superintendent, Lake Mead National Recreation Area

From: ACTING Regional Director, Pacific West Region

Subject: Environmental Compliance for Rehabilitation of Katherine Landing Access Road

The *Finding of No Significant Impact* (and supplementary *Statement of Findings for Floodplains*) for improvements to this heavily traveled 3.8 mile connector road, in order to enhance public safety and improve visitor access to the recreational opportunities in this popular park area, is approved.

To complete this particular compliance effort, at the time when the park announces the decision the attached documents should be made available to all individuals and organizations that received the supporting environmental assessment.

Christine S. Lehnertz

Attachments:2

TAKE PRIDE IN AMERICA

FINDING OF NO SIGNIFICANT IMPACT

Rehabilitate Katherine Landing Access Road

May 2013

Lake Mead National Recreation Area
Mohave County, Arizona

The National Park Service (NPS), in cooperation with the Federal Highway Administration Central Federal Lands Highway Division, plans to rehabilitate, reconstruct, and resurface Katherine Landing Access Road from its intersection with Davis Dam Road to the Katherine Landing boat ramp in Lake Mead National Recreation Area, Arizona. Rehabilitation of Katherine Landing Access Road is needed to correct a number of interrelated conditions that negatively affect public safety and visitor experience. The purpose of the action is to enhance public safety and support a high-quality visitor experience by correcting deficiencies in road design and conditions, including road and shoulder widths, horizontal and vertical curves, pavement condition, drainage structures, rockfall hazards, vehicle pullouts, vehicular circulation, traffic queueing, drainage problems, and flood damage threats to roadway embankment.

This Finding of No Significant Impact (FONSI) and the Environmental Assessment (EA) constitute the record of the environmental impact analysis and decision-making process for the road repairs and improvements to Katherine Landing Access Road. The NPS will implement the alternative referred to as Typical Section One. This alternative includes site-specific improvements needed to address identified deficiencies and associated improvements to rehabilitate the road. The approved alternative includes measures for protection of park resources, safety improvements, and a sustainable road for visitor travel, and provides long-term conditions necessary to sustain scenic, natural, and cultural resources. Planned improvements will enhance the efficiency of park operations by correcting structural deficiencies in the road, reducing maintenance requirements, and offering improved visitor enjoyment and safety while protecting park resources. The Typical Section One alternative was selected after careful review of resource and visitor impacts, public comments, and in consideration of available funding.

This document records (1) a FONSI as required by the National Environmental Policy Act of 1969 (NEPA) and (2) a determination of no impairment as required by the NPS Organic Act of 1916 (Attachment A).

Selected Action

The Selected Action is Typical Section One. Under Typical Section One, which was identified and analyzed in the EA, Katherine Landing Access Road will be rehabilitated, reconstructed, and resurfaced. Existing travel lanes will be widened to 12 feet. Shoulders will be widened and paved to 2 feet on each side of the highway. The total width of roadway pavement, including the shoulders, will be 28 feet.

Typical Section Two was the other action alternative evaluated in detail in the EA. This alternative would include a wider 4-foot shoulder, and would result in a total width of roadway pavement of 32 feet. This alternative would be more costly to construct. Other than the shoulder width, which results in different costs and levels of environmental impacts, the remaining elements of the proposed designs are actions common to both alternatives. Typical Section One and Typical Section Two would meet the project's purpose and need and project objectives to (1) improve the efficiency of park operations, (2) provide for visitor safety and enjoyment, and (3) protect park resources.

The environmental assessment identified Typical Section Two as the Preferred Alternative because its wider shoulder would accommodate advanced bicyclists; provide more space for emergency and maintenance access and response, and for the temporary parking of disabled vehicles.

Both alternatives would meet the project's purpose and need and project objectives. Typical Section One, with its smaller footprint of disturbance and lower construction cost, was selected for implementation at this time. The NPS will consider construction of the wider shoulder if future conditions warrant this action. Additional road improvements will be made as described in the following sections.

Roadway Improvements and Pullouts

A graded ditch will be established along portions of the highway. Existing guardrail will be replaced and new guardrail installed at various locations. Existing gravel pullouts will be paved, and others will be removed. Nine pullouts will be available following construction: six paved and three unpaved. Pavement rehabilitation, roadway widening, and other improvements will be undertaken at the fee station, and a dedicated turn lane will be constructed at Katherine Mine Road and Cabinsite Road. New concrete curb and gutter will replace asphalt curbing.

Intersection Realignment

The intersection of Davis Dam Road and Katherine Landing Access Road will be reconfigured. A new "T" intersection will provide unimpeded traffic flow on Katherine Landing Access Road. The abandoned portions of the Davis Dam and Katherine Landing Access roadways will be obliterated and revegetated.

Parking Area Improvements

Parking improvements will include the rehabilitation of existing parking areas and the paving of unpaved parking areas. An unpaved parking area on the northeast corner of the reconfigured Katherine Landing Access Road and Davis Dam Road intersection will be paved. New curb and gutter and an accessible sidewalk will be installed along the eastern edge of the parking lot. Existing parking areas will be rehabilitated along the east and west sides of Katherine Landing Access Road at the fishing pier.

Drainage Improvements

Drainage improvements will be implemented along Katherine Landing Access Road. Riprap will be placed on both sides of the roadway for scour protection, as needed. Due to lane widening, approximately 19 existing culverts in the project limits will be extended, and structure components, such as headwalls, wingwalls, elbows, end sections, and riprap inlet and outlet protection, will be incorporated, as needed.

At an existing box culvert, 1,500 feet north of the Davis Dam Road intersection, the wingwalls and cap will be extended and higher overflow culverts added. Approximately 1.1 miles north of this intersection, a row of gabion baskets will be removed and replaced with riprap, and a new mechanically stabilized earth-retaining wall (approximately 270 feet long) will be constructed on the roadway edge. A new culvert will be installed under the Katherine Mine Road intersection parallel to Katherine Landing Access Road. Existing surface drainage features will be rehabilitated.

Construction Phasing

The project is scheduled for winter 2015–2016, dependent on availability of funding. All construction activities are anticipated to be completed between Labor Day (September) and Memorial Day (May) to avoid work during the summer, which is an annual period of peak visitor use.

Resource Protection Measures

To minimize potential adverse impacts associated with the Selected Action, best management practices (BMPs) and resource protection measures will be implemented during the construction and post-construction phases of the project. General and resource-specific BMPs and resource protection measures for the project are listed in the following table. The NPS responsible party is identified for each measure and for post-project monitoring of the effectiveness of the mitigation strategy. The NPS Monitor assignment involves staff of the park's Environmental Compliance branch, responsible for regularly inspecting projects during implementation, providing resource protection training, ensuring that mitigation measures are implemented as required, and monitoring post-project efficacy of mitigation strategies.

Resource Area	Mitigation Measure	Responsible Party
Wildlife and Habitat	All construction equipment will be pressure-washed to remove foreign soil and plant matter before entering Lake Mead National Recreation Area. A National Park Service representative will inspect the equipment to ensure its cleanliness.	Contractor, with inspection by NPS Monitor
	Removal of native vegetation will be minimized to the extent practicable.	Contractor, with oversight by NPS Monitor
	All disturbed areas that will not be permanently incorporated into the transportation facility will be restored by seeding with native species, topsoil salvage and replacement, or a combination of both methods.	Contractor, with oversight by NPS Monitor
	Design of culvert inlet and outlet riprap scour protection will include wildlife routes to allow continued wildlife movement through culverts.	NPS Project Manager

Resource Area	Mitigation Measure	Responsible Party
Federally Listed Species and Species of Special Concern	To protect any unknown or undiscovered threatened, endangered, or special status species, the construction contract will include provisions for the discovery of such. These provisions will require the cessation of construction activities until NPS staff evaluates the project impact on the discovery and will allow modification of the contract for any protection measures determined necessary to protect the discovery.	NPS Biologist
	A desert tortoise education program shall be presented to all personnel on-site during construction. This program will contain information concerning the biology and distribution of the desert tortoise, its legal status, its potential occurrence near the proposed project limits, the definition of "take" and associated penalties, measures designed to minimize the effects of construction activities, the means by which workers can facilitate this process, and reporting requirements if desert tortoises are encountered.	NPS Biologist
Floodplains	Following construction, any temporary roads across the 100-year floodplain will be obliterated and the floodplain graded to match the surrounding terrain.	Contractor, with oversight by NPS Monitor
Water Quality/Quantity and Streamflow Characteristics	Prior to construction, a Clean Water Act Section 404 permit and Section 401 Certification will be acquired from the U.S. Army Corps of Engineers and the Arizona Department of Environmental Quality for all work occurring in Waters of the United States. The contractor shall adhere to all conditions, including any special conditions, of the permit and certification during and following construction activities.	Contractor, with oversight by NPS Monitor
	Prior to construction, a Clean Water Act Section 402 National Pollutant Discharge Elimination System Permit will be acquired. The contractor shall adhere to all conditions of this permit during and following construction activities.	Contractor, with oversight by NPS Monitor
	Construction will occur when no flow is present in the ephemeral drainages crossing the project limits.	Contractor, with oversight by NPS Monitor
Air Quality	Any project-related vehicle or equipment operating on unpaved roads will not exceed a speed limit of 25 miles per hour.	Contractor, with oversight by NPS Monitor
	All active construction areas, including on-site haul roads, staging areas, and storage piles, will be effectively stabilized against dust emissions by applying water and/or other reasonable measures. Land disturbances will be limited to areas needed for construction.	Contractor, with oversight by NPS Monitor

Resource Area	Mitigation Measure	Responsible Party
	Trucks hauling soil or sediment will be covered.	Contractor, with oversight by NPS Monitor
	The contractor will not operate equipment and vehicles that show excessive emissions of exhaust gases until corrective repairs or adjustments are made to reduce such emissions to acceptable levels.	Contractor, with oversight by NPS Monitor
	Unnecessary idling of diesel-powered construction equipment will be minimized.	Contractor, with oversight by NPS Monitor
	The contractor will immediately clean up any track-out onto a paved public roadway that exceeds 25 feet in length or exhibits a track-out pack-depth greater than 0.25 inch. All visible track-out will be removed at the end of each work day.	Contractor, with oversight by NPS Monitor
	The contractor will not be permitted to dispose of construction materials by burning.	Contractor, with oversight by NPS Monitor
Archeological Resources and Historic Structures	If previously unidentified cultural resources are discovered during construction-related activities, construction activities will be halted. The NPS will be notified immediately and arrangements made for the appropriate assessment and treatment of those resources.	Contractor, with oversight by NPS Monitor
Visual Resources	Natural contours will be maintained to the greatest extent practicable. Rock placement in disturbed areas will match the local area in terms of size and density. Rocks and soil may be stained to achieve colors consistent with the surrounding environment.	NPS Project Manager

Other Alternatives Considered

Two other alternatives were evaluated in the EA—the No Action alternative and Typical Section Three. Under the No Action alternative, routine maintenance activities and other normal daily park operations would continue, and any previously approved plans would be implemented. Katherine Landing Access Road would continue to be available for use by local residents, park employees, and visitors. Existing concerns such as narrow travel lanes and shoulders, rockfall hazards, excessive traffic queueing, and drainage issues would remain.

Typical Section Three was considered for project implementation but was ultimately dismissed from further analysis in the EA. Typical Section Three would reconstruct Katherine Landing Access Road to two 12-foot-wide travel lanes with a 2-foot-wide shoulder and a 15-foot-wide bike path zone with an 8-foot-wide dedicated and paved bike lane. Though Typical Section Three would satisfy the overall project purpose and need, it was eliminated from further consideration because resulting environmental impacts would be too great and because it would be the most costly to construct of the action alternatives.

One design option was also considered for the intersection realignment but was ultimately dismissed from further analysis in the EA. This intersection realignment option would generally maintain the existing configuration of the intersection, with Davis Dam Road as the "through

road." The Davis Dam through-road option was dismissed from further consideration because it would not improve traffic flow through the intersection and would not fully meet the purpose of, and need for, the project.

Environmentally Preferable Alternative

According to the Council on Environmental Quality regulations implementing NEPA (43 Code of Federal Regulations [CFR] 46.30), the environmentally preferable alternative is the alternative "that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative."

Typical Section One is the Environmentally Preferable Alternative because its smaller footprint of disturbance would have the least potential of the action alternatives to affect the biological, physical, natural, and cultural resources of the project area and, therefore, best meets the evaluation criteria for the Environmentally Preferable Alternative. Typical Section Two would result in approximately 6 more acres of new ground disturbance than Typical Section One and, therefore, would have more potential to affect the previously referenced resources.

Why the Selected Action Will Not Have a Significant Effect on the Human Environment

As defined in 40 CFR Section 1508.27, significance is determined by examining the following criteria.

Impacts that may be both beneficial and adverse: A significant effect may exist even if the agency believes that on balance the effect will be beneficial

Implementation of the Selected Action will result in some beneficial and adverse impacts; however, the overall benefit of the project outweighs the negative effects. No major adverse or beneficial impacts were identified in the EA analysis that would require analysis in an Environmental Impact Statement (EIS).

Air Quality

Deterioration of air quality is expected during construction due to the operation of construction equipment and the movement of soil. Temporary construction-related impacts on air quality will be direct, localized, short-term, negligible, and adverse. Following construction, the Selected Action will reduce the generation of air pollutant emissions that currently occurs along Katherine Access Road during peak visitation by reducing traffic congestion and vehicle queues and emissions associated with vehicle idling. Following construction, impacts on air quality will be direct, localized, long-term, negligible, and beneficial.

Vegetation and Special Status Plant Species

Construction activities will result in a short-term impact on individual plants. A long-term impact on vegetation will occur in those areas permanently incorporated into the roadway

infrastructure. This will have direct, localized, long-term, negligible to minor, and adverse impacts on vegetation. The potential for introduction of new invasive species or the spread of existing invasive species is expected with construction activities but will be reduced through the implementation of invasive species control measures and BMPs. No special status plant species are known to be present or were discovered in the project area.

Wetlands

No wetlands or riparian habitats are in the project limits; therefore, the Selected Action will not affect these resources.

Water Resource—Quantity and Quality

Disturbance of soil during construction will temporarily disturb soils in the construction area, which could contribute to soil erosion and migration to adjoining areas, including dry wash beds—resulting in direct, localized, short-term, minor, and adverse impacts on water quality. Scour protection will reduce bank erosion, reducing suspended sediment during flow events, resulting in direct, localized, long-term, negligible, and beneficial impacts.

Floodplains

No substantial changes to floodplain topography will result from the Selected Action. Impacts due to temporary access roads will be direct, localized, short-term, negligible to minor, and adverse.

Fish and Wildlife

Construction activities and traffic will displace wildlife due to noise and/or human presence. The Selected Action will include measures such as riprap-free wildlife routes into culverts to minimize potential barriers to wildlife movement. The noise and activity of construction, including temporary blockages of potential movement corridors, will have direct, localized, short-term and long-term, negligible to minor, and adverse impacts on wildlife.

Special Status Species

The Selected Action will not impact federally listed species or their critical habitat because none were found to be present in the project area. However, due to the existence of desirable habitat and the potential presence of the Sonoran Desert tortoise, a candidate for listing under the Endangered Species Act), a desert tortoise education program shall be presented to all construction personnel. It is possible that individuals of a species may be impacted during construction. This impact will be considered direct, localized, short-term, minor, and adverse.

Cultural Landscape

There will be no impact to the cultural landscape because there are no historic properties in the project limits.

Archeological Resources

There will be no impact to archeological resources because there are none in the project limits.

Visitor Use/Experience, Visitor Safety, and Visual Resources

Construction will result in temporary delays to motorists for the duration of construction. Following construction, reduction of traffic delays, increased safety due to widened road, shoulders, and pullouts, and an expected reduction in traffic incidents will result in indirect, localized, long-term, moderate, and beneficial impacts.

With the rugged terrain and steep fill slopes along the roadway, the widening of the shoulder under Typical Section One will extend cut and fill slopes and constitute a visual impact. Impacts to visual resources as a result of road widening will be direct, localized, long-term, minor, and adverse.

Construction activities will temporarily increase noise, resulting in direct, localized, short-term, minor to moderate, and adverse impacts. Decreases in vehicle congestion and idling during peak visitation will result in indirect, localized, long-term, negligible, and beneficial impacts.

Park Operations

Construction activities will result in direct, localized, short-term, negligible, and adverse impacts on park operations. Improvements will reduce the burden on NPS maintenance, law enforcement, and emergency response personnel, resulting in direct, parkwide, long-term, minor, and beneficial impacts.

Degree of effect on public health and safety

Rehabilitation of Katherine Landing Access Road with the Selected Action will reduce traffic delays along Katherine Landing Access Road during peak visitation. A reduction in traffic delays and the addition of safety improvements (e.g., construction of shoulders, vehicle pullouts, and widened travel lanes) will reduce traffic accidents and incidents and reduce emergency vehicle response times. The Selected Action will result in localized, long-term, moderate, and beneficial effects on public health and safety. Traffic control measures will be implemented to protect visitors during construction.

Degree to which effects on the quality of the human environment are likely to be highly controversial

At no time throughout the environmental process was the proposal to rehabilitate Katherine Landing Access Road considered highly controversial, and the effects are not expected to generate future controversy. None of the identified environmental effects from implementation of the project was highly controversial, and there is no indication of controversy over the nature of the effects. Given the substance of public comments, there is no evidence that the effects on the quality of the human environment will be highly controversial.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks

The road rehabilitation meets project objectives through implementation of structural improvements that correct damaged and deteriorating road conditions, address public safety, provide for visitor enjoyment, and protect park natural and cultural resources. The anticipated effects on the human environment, as analyzed in the EA, are not highly uncertain or unique, and do not involve unknown risks. Resource conditions in the project area are well known, and the anticipated impacts from implementing commonplace road rehabilitation work are understood based on Federal Highway Administration and NPS experience with similar projects.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration

Rehabilitation of Katherine Landing Access Road will not result in significant adverse effects on the natural environment, cultural resources, or visitor experience because the project was

designed to minimize resource and visitor impacts, and resource protection measures were incorporated into the project to further reduce identified adverse effects. The Selected Action will provide for the long-term protection of resources and will not establish a precedent for future actions that could have significant effects, nor does the action represent a decision about future actions.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts

The Selected Action is not related to other actions with individually insignificant but cumulatively significant impacts. The EA concluded that past, present, and reasonably foreseeable future activities, when combined with the rehabilitation of Katherine Landing Access Road, will have localized, short-term, negligible to minor, and adverse effects on soils. Cumulative effects on vegetation, wildlife, federally listed species, species of special concern, water quantity and quality, and soundscape will be localized, long-term, minor, and adverse. Cumulative effects on floodplains will be localized, long-term, minor to moderate, and adverse. Cumulative effects on air quality will be localized, long-term, negligible to minor, and adverse. The Selected Action will not contribute to cumulative effects on streamflow characteristics or historic properties. Localized, long-term, moderate, and beneficial cumulative effects will occur to visitor use/experience, visitor safety, and visual resources. Cumulative effects on park management and operations will be parkwide, long-term, minor, and beneficial.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources

The Selected Action will have no effect on historic properties (i.e., cultural resources eligible for the National Register of Historic Places) because none are in the area of potential effects. In addition, the NPS concludes that implementation of the Selected Action will have no adverse effect on Indian Trust resources, ethnographic resources, or museum collections. The Lake Mead National Recreation Area (NRA) has conducted Section 106 consultation with regard to the proposed undertaking and made a determination of "no historic properties affected." The Arizona State Historic Preservation Office (SHPO) concurred by letter dated June 29, 2012, and by email on August 16, 2012.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat

The Selected Action will not impact federally listed species or their critical habitat because none are present in the project area. Consultation with the U.S. Fish and Wildlife Service in accordance with the Endangered Species Act was not required or undertaken because no federally listed species are present in the project limits.

The project vicinity, however, provides suitable habitat for the Sonoran Desert tortoise (a candidate for listing under the Endangered Species Act). It is possible that individuals of a species may be impacted during construction; however, because of the relatively small area of disturbance, the Selected Action will not impact the overall species population. To reduce the potential for impact, a desert tortoise education program shall be presented to all personnel on-site during construction.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical area

As described in the EA, historic or cultural resources, wetlands, prime farmlands, wild and scenic rivers, and ecologically critical areas will not be affected by the project.

Whether the action threatens a violation of federal, state, or local environmental protection law

The Selected Action does not violate any federal, state, or local environmental protection laws.

PUBLIC INVOLVEMENT

Lake Mead NRA issued a press release on October 28, 2010, to initiate the scoping process. At that same time, a notice was posted on the NPS website and the Planning Environment and Public Comment (PEPC) project home page. The notice also appeared on the Las Vegas Sun website. During the scoping period, which ended on November 30, 2010, three comments were received. All comments were in favor of the project, and one included roadway improvement and traffic management suggestions for consideration during alternative development.

On March 15, 2013 a press release announcing a 30-day public review period for the environmental assessment was sent to television stations, newspapers, magazines, and radio stations in Las Vegas, Henderson, Boulder City, Pahrump, Overton, Logandale, Laughlin, Nevada; Meadview, Kingman, Phoenix, and Bullhead City, Arizona; and Needles and Los Angeles, CA. The environmental assessment was published on the Lake Mead NRA website at http://www.nps.gov/lake and on the NPS PEPC website at http://parkplanning.nps.gov/.

Lake Mead NRA's mailing list is comprised of 247 entities including federal, state, and local agencies; tribes; individuals; businesses; libraries; and organizations. The environmental assessment was distributed 36 individuals, agencies, and organizations likely to have an interest in this project. Entities on the park mailing list that did not receive a copy of the environmental assessment received a letter notifying them of its availability and methods of accessing the document.

Copies of the environmental assessment were available at area libraries, including: Boulder City Library, Clark County Community College (North Las Vegas), Clark County Library, Las Vegas Public Library, Green Valley Library (Henderson), James I. Gibson Library (Henderson), Sahara West Library (Las Vegas), Mohave County Library (Kingman, AZ), Sunrise Public Library (Las Vegas), University of Arizona Library (Tucson, AZ), University of Nevada Las Vegas James R. Dickinson Library, Meadview Community Library, Moapa Valley Library (Overton, NV), Mesquite Library, Mohave County Library (Lake Havasu City, AZ), Laughlin Library, Searchlight Library, and Washington County Library (St. George, UT).

Nine correspondences were received during the public review period, which ended on April 18, 2013. The Desert Tortoise Council recommended that a biological monitor be present during construction, in addition to implementation of a tortoise education program, as proposed by the NPS. The U.S. Army Corps of Engineers recommended that a storm water pollution protection plan (SWPPP) for the project construction should be added as a mitigation measure to reduce project construction impacts to water quality/quantity and/or stream flows. The agency also

stated that as part of this SWPPP mitigation measure, the contractor should adhere to all conditions of the SWPPP during and following construction activities. The Arizona Game and Fish Department (AGFD) sent the Heritage Data Management System's special status species list for species that might occur within the project footprint. The agency also sent the desert tortoise survey and handling guidelines, mitigation measures, and tortoise-friendly culvert design guidelines for NPS consideration. The AGFD recommended that when wildlife training takes place for the construction personnel, emphasis be placed on how to safely handle desert tortoises if they happen to be encountered.

Of the remaining comments, two individuals emphasized that construction should avoid the summer months of peak visitation. One stated that the proposed roadway improvements are not necessary; a second supported repaving the roadway but not widening it. One stated a preference for Typical Section One—the Environmentally Preferable Alternative and the Selected Action. One stated a preference for Typical Section Two, which was identified in the EA as the Preferred Alternative. Two stated a preference for Typical Section Three, which was presented in the EA but eliminated from detailed consideration due to its potential impact on park resources and its higher construction cost.

AGENCY AND TRIBAL CONSULTATION

Consultation with the U.S. Fish and Wildlife Service in accordance with the Endangered Species Act was not required or undertaken because no federally listed species are present in the project limits.

Documents related to the National Historic Preservation Act, in accordance with Advisory Council on Historic Preservation regulations implementing Section 106 (36 CFR 800), were completed as a separate submittal to SHPO. The NPS has found that the Selected Action would have no adverse effect on historic properties, and SHPO concurred with that determination in a letter dated June 29, 2012, and an email dated August 16, 2012.

Fifty-two tribal representatives were notified of the availability and methods of accessing the environmental assessment, but no comments on the project were received.

CONCLUSION

Based on the environmental impact analysis documented in the EA, with due consideration of the nature of the public comments and consultations with other agencies, and given the capability of the mitigation measures to avoid, reduce, or eliminate impacts, the NPS has determined that the Selected Action does not constitute a federal action that normally requires preparation of an EIS. Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that range from localized to parkwide, short- to long-term, and negligible to moderate. The Selected Action will not have a significant effect on the quality of the human environment or the park's cultural or natural resources.

There are no unmitigated adverse impacts on public safety, sites, or districts listed in, or eligible for listing in, the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, cumulative effects, or elements of precedence were identified. Implementation of the Selected Action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that an EIS will not be prepared and the Selected Action may be implemented as soon as practicable.

Recommended: _____ 5/28/13
William K. Dickinson, Superintendent — Date
Lake Mead National Recreation Area

Approved: _____ 6/13/13
for Christine Lehnertz, Regional Director — Date
Pacific West Region

ATTACHMENT A

Determination of No Impairment

The Organic Act of 1916 (16 U.S. Code [USC] 1–4; 1916) and the General Authorities Act of 1970 (16 USC 1a-1 et seq.) establish direction for the management of lands reserved for national parks. Both acts prohibit any "impairment" of national park resources or values. A resource impairment is defined as "an impact that, in the professional judgment of the NPS [National Park Service] manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values" (NPS 2006). Several factors determine whether an anticipated resource impact would constitute an impairment of the resources:

- The resources and values that would be affected
- The severity, duration, and timing of the impact
- The direct and indirect effects of the impact
- The contribution of the anticipated impact to the overall cumulative condition of the resource

The NPS 2006 Management Policies require analysis of potential effects to determine whether actions would impair park resources (NPS 2006). The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid or to minimize, to the greatest degree practicable, adverse impacts to park resources and values. However, the laws give the NPS the management discretion to allow impacts to park resources and values when necessary and to appropriate to fulfill the purposes of a park as long as the impact does not constitute impairment of the affected resources and values.

Though Congress has given the NPS the management discretion to allow certain impacts in parks, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect on a resource or value whose conservation is:

1. necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
2. key to the natural or cultural integrity of the park; or
3. identified as a goal in the *Lake Mead NRA* [National Recreation Area] *General Management Plan* (NPS 1986), or other relevant NPS planning documents.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park.

Impairment findings are not necessary for visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations because impairment findings relate to park resources and values, and these impact areas are not considered park resources or values according to the Organic Act. Topics dismissed from further analysis in the Environmental Assessment are socioeconomics/environmental justice, wilderness, wetlands and riparian habitats, land use, Indian trust assets, geohazards/natural hazards, cultural landscapes, ethnographic resources, and museum collections.

The impact topics to be evaluated for impairment are geological resources and soils, vegetation, wildlife, federally listed species and species of special concern, floodplains, water quality and quantity, streamflow characteristics, air quality, archeological resources and historic structures, and soundscapes.

Geological Resources and Soils

Soils throughout the project area are hyperthermic arid soils of the Lithic Camborthids–Rock Outcrop–Lithic Haplargids Association or the Torrifluvents Association. Katherine Landing Access Road extends through areas of bedrock and sand and gravel alluvial fan deposits before transitioning to gently sloping terrain with sand and gravel alluvial fan deposits and braided drainage swales. Many of the alluvial fan deposits and bedrock are susceptible to erosion.

Under the Selected Action, improvement activities would result in earthwork (cut and fill), soil compaction, and temporary increases in soil erosion. Permanent stabilization of soils following construction would help reduce erosion and sedimentation from vehicle movements, wind, and water. The underlying geology of the project area would not be impacted. Total soil disturbance would be limited to approximately 24 acres. The Selected Action would not result in impairment of geological or soil resources because relatively few acres would be impacted and the impacts would occur immediately adjacent to an existing highway.

Vegetation

The project area lies in the Mohave Desert Scrub community. Native vegetation is dominated by brittlebush–creosote bush, with vegetation varying depending on the terrain. Flat terrain to rolling hills is dominated by sparse creosote bush whereas rocky and steep terrain is dominated by dense brittlebush. Near the Katherine Landing boat ramp, the project area is highly developed and landscaped. The invasive Arabian schismus *(Schismus arabicus)* and tamarisk (*Tamarix* spp.) were observed in or near the project limits.

Construction of roadway widening under the Selected Action would result in the long-term loss of native and nonnative vegetation along a narrow strip of the first 3 miles of the project length. Other construction, such as the intersection realignment and some drainage improvements, would convert currently vegetated terrain to the built environment. Impacts to native vegetation as a result of construction activities would not have any potential to endanger a native species population. Best management practices for the control of invasive species would be implemented.

The Selected Action would not result in impairment of vegetation because adverse impacts would be addressed by mitigation measures, including revegetating disturbed areas and controlling invasive species.

Wildlife

A site survey identified Gambel's quail *(Callipepla gambelii)* coveys, round-tailed ground squirrel *(Spermophilus tereticaudus)*, and signs of other small rodents and wild burro *(Equus africanus asinus)* in the project limits.

Under the Selected Action, construction activities would result in the removal of some vegetation immediately adjacent to the roadway. Drainage improvements, including placement of riprap, could have the potential to affect wildlife movement. The addition of riprap to culvert inlets and outlets could provide a barrier to the wildlife movement because some species are unable or unwilling to cross riprap. Measures, such as providing a riprap-free wildlife route into the culvert, would be used to mitigate the impact of riprap placement on wildlife movement. During construction, temporary displacement or avoidance of adjacent natural areas by wildlife could occur. These impacts would be temporary.

The Selected Action would not result in impairment of wildlife resources because the relatively low-level adverse impacts would either be temporary or would be addressed by mitigation measures, including wildlife routes across riprap.

Federally Listed Species and Species of Special Concern

No federally listed species would be impacted by the Selected Action because there are none in the project area.

Suitable habitat for the Sonoran Desert tortoise, a candidate species, is in the project limits, though the project limits are near the northern extent of the desert tortoise range. The nearest occurrence record is from 1.5 miles southeast of the project limits. Suitable habitat is present in the project area for the Gila monster, a sensitive species, and the California leaf-nosed bat, a Wildlife of Special Concern in Arizona.

The Selected Action would impact a relatively small area (24 acres) of previously undisturbed terrain and previously disturbed ground that is not currently paved or covered by a man-made structure. Because of the relatively small area of disturbance, this project would not be expected to impact any species population. It is possible that individuals of a species may be impacted during construction, but the impact would be short-term.

The Selected Action would not result in impairment of federally listed species because there are none in the project area, and would not impair other species of special concern because adverse impacts would be temporary and relatively small-scale.

Floodplains

Several unnamed washes cross the project area; however, a majority of the project area lies outside the 100-year floodplain. The 100-year floodplain in the project area is associated with an unnamed wash crossed by Katherine Landing Access Road approximately 0.25 mile north of its junction with Davis Dam Road.

The Selected Action improvements would require a culvert extension in a channel associated with a 100-year floodplain. Because the permanent improvement would be in the channel, this alternative would not substantially modify the topography of the floodplain in the project area. Temporary impacts to the 100-year floodplain would occur as construction equipment traverses the floodplain to access the unnamed wash for culvert extension activities. Following

construction, the temporary road would be removed and the terrain returned to its original configuration. Further minimization of impacts would result from the development and implementation of an erosion and sediment control plan during construction. Native vegetation removal would be minimized to the extent practicable.

The Selected Action would not result in impairment of floodplain resources because adverse impacts would be temporary and addressed by mitigation measures.

Water Quality and Quantity

Thirty-six washes are in the project area, not including the many erosional gullies that are in the mountainous regions. Five of the 36 washes are potentially Waters of the United States (Waters). Some of the washes parallel the road for a distance, including one wash that parallels the west side of Katherine Landing Access Road for approximately 1.4 miles before flowing into Lake Mohave just north of Davis Dam Road.

Under the Selected Action, work would occur in at least 19 of the 36 ephemeral washes in the project area, including five washes identified as potential Waters. Scour protection measures would reduce bank and floor erosion, thereby reducing suspended sediment carried during flow events. Culvert extensions would be adequate to convey flow and would not adversely impact water quality or quantity. Any work occurring in Waters would require the acquisition of a Clean Water Act Section 404 permit and Section 401 Water Quality Certification. Temporary impacts to water quality due to construction activities would be anticipated. To mitigate temporary impacts, a Section 401 National Pollutant Discharge Elimination System permit, including an erosion and sediment control plan, would be obtained and conditions of the permit followed during construction. Vegetation removal would be minimized to the extent practicable.

The Selected Action would not result in impairment of water quality or quantity because adverse impacts would be temporary and mitigation measures would be implemented to reduce impacts.

Streamflow Characteristics

Washes in the project area are ephemeral. Southwesterly flow from these washes is conveyed across Katherine Landing Access Road via culverts and, from there, continue in natural channels to Lake Mohave. Scour protection structures, such as gabion baskets along channel banks or riprap at channel outlets, are present in a few washes in the project limits.

The Selected Action would change the physical characteristics of the ephemeral wash channels by adding riprap and other scour protection structures, and realigning and armoring a segment of a wash running parallel to Katherine Landing Access Road. These activities have a beneficial impact by reducing scour and protecting the roadway and drainage structures. The addition of scour measures such as riprap would add roughness to the channel and would reduce flow velocities in the immediate area of the improvements. In some locations, road crossings may be altered slightly. These changes would not be expected to have an adverse impact on the wash or flow conveyance. Construction would occur when washes are dry. Work in Waters would require the acquisition of, and compliance with, a Clean Water Act Section 404 permit and Section 401 certification.

The Selected Action would not result in impairment of streamflow characteristics because impacts from construction would have a beneficial impact on these resources.

Air Quality

Lake Mead NRA is designated as a Class II air quality area. Class II airsheds have good air quality with no additional air quality restrictions above those of the National Ambient Air Quality Standards. The Lake Mead NRA is in attainment for each of the six criteria pollutants. Currently during periods of peak visitation, Katherine Landing Access Road conditions lead to long lines of idling vehicles, which likely have a localized, short-term effect on air quality.

The Selected Action would have the potential to reduce generation of air pollutant emissions during peak visitation periods by creating additional pullout areas for disabled vehicles and adding lanes at key locations. Improvements would not be expected to result in changes to the current Class II air quality designation. During construction, short-term, localized deterioration of air quality would be expected due to the operation of construction equipment and the movement of soil. These effects would be temporary and would cease upon completion of construction.

The Selected Action would not result in impairment of air quality because adverse impacts would be temporary and would cease upon completion of construction.

Archeological Resources and Historic Structures

The cultural resource survey identified two in-use structures, one archeological site, and five isolated occurrences in the area of potential effects, all of which were recommended as not eligible for the National Register of Historic Places. In accordance with Section 106 of the National Historic Preservation Act, the Arizona State Historic Preservation Office concurred with the NPS finding of no effect on historic properties.

Therefore, the Selected Action would not result in impairment of archeological resources and historic structures.

Soundscapes

Background noise in the project area is generated from the operation of motor vehicles on Katherine Landing Access Road and watercraft on Lake Mohave near Katherine Landing. Recreationists using the site to fish from land, swim, picnic, or otherwise engage in nonmotorized recreation also contribute to the background noise level. With the noise from motor vehicle traffic, watercraft, and recreationists, this area is in an NPS Development Zone and is not considered as an area for solitude and quiet.

The Selected Action would result in a decrease in noise levels by reducing vehicle congestion and idling during peak visitation periods. This would result in a negligible, beneficial, intermittent impact on soundscapes in the project area. The operation of heavy equipment during construction would result in a temporary and localized increase in noise levels.

The Selected Action would not result in impairment of soundscapes because adverse impacts would be limited to the operation of heavy equipment during construction and would be temporary, and long-term effects of the action from reducing vehicle congestion and idling would beneficially affect noise levels.

FLOODPLAIN STATEMENT OF FINDINGS

Rehabilitate Katherine Landing Access Road
Environmental Assessment
Lake Mead National Recreation Area
Arizona

Recommended: _____ 5/29/13
Superintendent, Lake Mead National Recreation Area — Date

Concurred: _____ 5/31/13
Chief, Water Resources Division — Date

for Concurred: _____ 6/11/13
Regional Safety Officer, Pacific West Region — Date

The above signatures certify that this document is technically adequate and consistent with NPS policy.

Approved: _____ 6/13/13
Director, Pacific West Region — Date

acting

Introduction

Executive Order 11988, Floodplain Management, directs federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. Section 4.6.4 of the National Park Service (NPS) Management Policies states that the National Park Service will (1) manage for the preservation of floodplain values, (2) minimize potentially hazardous conditions associated with flooding, and (3) comply with the NPS Organic Act and all other federal laws and Executive Orders related to the management of activities in flood-prone areas. Pursuant to these directives and in accordance with Director's Order (DO) 77-2 (Floodplain Management), the NPS has reviewed the project area for flood hazards and has prepared this Statement of Findings.

The project is along Katherine Landing Access Road at the south end of Lake Mead National Recreation Area, approximately 1 mile north of Bullhead City on the Arizona side of the Colorado River. For the majority of the project area, Katherine Landing Access Road is a two-lane undivided roadway. The road begins (milepost 0.0) at its junction with Davis Dam Road and curves north and west for approximately 3.87 miles to the Katherine Landing boat ramp at Lake Mohave, which is formed by the impoundment of water by Davis Dam less than 1 mile to the south. The topography of the area is generally mountainous from Davis Dam Road north to the westward curve of Katherine Landing Access Road. The area then transitions to relatively open topography that gently descends to Lake Mohave. No wetlands are in the project area.

This Statement of Findings describes the flood hazards, alternatives carried forward for analysis in the associated Environmental Assessment, and possible mitigation measures for impacts to the floodplain.

Purpose and Need

Reconstruction of the Katherine Landing Access Road is being proposed to correct a number of interrelated conditions that negatively affect public safety and visitor experience. The purpose of the action is to enhance public safety and support a quality visitor experience by correcting deficiencies in existing road design and conditions, including road and shoulder widths, horizontal and vertical curves, pavement condition, drainage structures, rockfall hazards, pullouts, vehicular circulation, traffic queueing, drainage problems, and threats to roadway embankment. Improvements would be implemented in a way that minimizes impacts to the area's natural and cultural resources. The following paragraphs describe the project need.

Pavement

Pavement on the roadway and parking areas is deteriorating due to large volumes of traffic and normal wear. The deteriorating condition of the road may contribute to an elevated number of accidents along portions of the road. There is a need to reduce maintenance requirements and costs due to deficiencies in the road condition and prevent catastrophic failure that could lead to road closure.

Road and Shoulder Widths/Horizontal and Vertical Curves

Roadway travel lanes are narrow (11 feet wide) for the type of vehicle and average speed of traffic on this road, and segments of the roadway have tight horizontal curves with

substandard superelevations (banking or tilting of the roadway surface). The existing roadway geometry does not fit the typical vehicle type (passenger truck with boat trailer and motor homes). The combination of the narrow roadway, tight curves, and recreational traffic causes centerline crowding, centerline overruns, and tracking off the pavement, contributing to vehicular accidents. Furthermore, the existing roadway section does not accommodate an adequate clear zone beyond the edge of the pavement that allows drivers to stop safely or regain control of their vehicle if it tracks off the roadway pavement. Delineator posts are frequently struck by vehicles towing larger boat trailers. In mountainous areas, there is evidence that trailers have struck the adjacent cut slopes. Tight vertical curves through mountainous areas limit motorists' sight distance (the stretch of roadway visible to a motorist) and contribute to accidents, including rear-end collisions. The potential for collisions is exacerbated on Katherine Landing Access Road because vehicles hauling boat trailers have greater difficulty stopping unexpectedly.

Rockfall Hazards

Rocks and debris fall onto the roadway with regularity, creating a hazard and requiring removal by maintenance crews. Exposed granite in roadway cuts is relatively friable (easily crumbled), and cut slopes are relatively steep, with the base of the slopes terminating close to the edge of the roadway pavement. This combination creates a condition where the weathering process, particularly erosion of cut slopes, has the potential to dislodge a considerable volume of debris onto the shoulders and into the travel lanes of the roadway.

Pullouts

Pullouts are limited and are not situated at regular intervals along the route. Many of the existing unmarked pullouts are not paved or delineated. For vehicles traveling toward Katherine Landing, there are few pullouts, leaving some motorists no option but to use pullouts on the opposite side of the road. For more than 2 miles (from approximately 1.2 miles north of Davis Dam Road to 0.4 mile east of the boat ramp), the existing roadway bench is extremely narrow, limiting the opportunities for motorists to pull off the roadway. Limited opportunities to safely pull off the roadway can affect park staff working along the roadway (e.g., litter removal, roadside assistance, law enforcement) and visitors. Accidents and engine failure on the travel lanes can result in lane blockage and traffic backups, and can also block emergency vehicle access.

Vehicular Circulation/Traffic Queueing

Trailers with watercraft queue up on Katherine Landing Access Road awaiting their turn to launch. The number of watercraft allowed on Lake Mohave at a time is restricted; therefore, once this capacity is reached, launching is delayed until boats exit the lake. During the peak summer period, boat launch queues often extend beyond the entrance station, blocking other vehicle access, including traffic entering or exiting Cabinsite Road. On weekends in peak season, launch queues can extend back to Davis Dam Road.

Three inbound lanes are between the entrance station and the boat ramp—one is dedicated to vehicles launching watercraft, a second provides a dedicated right-turn lane for Cabinsite Road, and a third allows for regular through traffic. Vehicles hauling watercraft to be launched must line up in the designated launching lane. Some visitors mistakenly choose the wrong lane; others choose the wrong lane purposefully to move up in the queue. Long launch queues and associated delays frustrate visitors. When boaters cut in line, visitor tempers can flare and, in some cases, altercations have resulted. Entrances to the overflow parking lot used regularly for the staging of large boats, including houseboats,

have inadequate widths for larger vehicles. While entering or exiting this lot, larger trailers with boats routinely jump over the curbs, cracking curbs and knocking over NPS signs.

Drainage Issues/Roadway Embankment Stability

A major, unnamed wash that parallels the road for approximately 1.4 miles and other minor drainages threaten the road embankment and can cause overtopping of the roadway and sediment deposition. Some existing culverts are in need of replacement and inlet and outlet protection. All other existing culverts would require extending the overall length to accommodate greater road width. The box culvert approximately 1,500 feet north of the intersection of Davis Dam Road on Katherine Landing Access Road lacks capacity for a 50-year storm. This storm event is likely to overtop the roadway. Existing wire basket gabions installed to armor wash banks and protect the roadway embankment are deteriorating and failing in several locations. The parallel roadside wash has eroded a 15-foot to 20-foot vertical face approximately 10 feet from the edge of the pavement, threatening to undermine Katherine Landing Access Road approximately 1.3 miles north of the Davis Dam Road intersection.

Description of Alternatives

Improvements are proposed for Katherine Landing Access Road in Lake Mead National Recreation Area, approximately 1 mile north of Bullhead City in Arizona. The purpose of the action is to enhance public safety and support a high-quality visitor experience by correcting deficiencies in existing road design and conditions, including road and shoulder widths, horizontal and vertical curves, pavement condition, drainage structures, and rockfall hazards. The No Action Alternative and two action alternatives are carried forward for analysis in the Environmental Assessment.

No Action Alternative

Activities under the No Action Alternative would include routine maintenance activities and other normal daily park operations, and any previously approved plans. Katherine Landing Access Road would continue to be open, the roadway would continue to deteriorate, and existing concerns would remain.

Components Common to Both Action Alternatives

The following improvements are common to Typical Section One and Typical Section Two:

- The intersection of Davis Dam Road and Katherine Landing Access Road would be reconfigured. A "T" intersection would be constructed to provide unimpeded traffic flow on Katherine Landing Access Road. At the intersection, the new road segments would consist of one 12-foot-wide through lane in each direction. The abandoned portions of roadway would be obliterated and revegetated.
- The action alternatives would rehabilitate, reconstruct, and resurface Katherine Landing Access Road from Davis Dam Road to the Katherine Landing boat ramp. Existing travel lanes would be widened to 12 feet. Shoulders would be paved on both sides of the highway. The width of the shoulders would depend on the action alternative implemented. A graded ditch would also be established along portions of the highway. Existing guardrail would be replaced and new guardrail installed at various locations. Existing gravel pullouts would be paved and others would be removed.

- Pavement rehabilitation, roadway widening, and other improvements would be undertaken at the fee station, and a dedicated turn lane would be constructed at Katherine Mine Road and Cabinsite Road. New concrete curb and gutter would replace asphalt curbing.
- Parking improvements would include the rehabilitation of existing parking areas, the paving of informal parking areas, and the obliteration of some existing parking areas.
- All drainage improvements would occur along Katherine Landing Access Road. Riprap would be placed on both sides of the roadway for scour protection, as needed. Due to lane widening, approximately 19 existing culverts in the project limits, including the one associated with the 100-year floodplain, would be extended, and structure components, such as headwalls, wingwalls, elbows, end sections, and riprap inlet and outlet protection, would be incorporated, as needed.

  Specific improvements in washes not associated with the 100-year floodplain include upgrading the existing concrete box culvert with extended wingwalls, cap, and new higher overflow culverts approximately 1,500 feet north of the Davis Dam Road/Katherine Landing Access Road intersection. Approximately 1.1 miles north of this intersection, on the west side of the road, a row of gabion baskets would be removed and replaced with riprap, and a new mechanically stabilized earth-retaining wall (approximately 270 feet long) would be constructed on the roadway edge. A new culvert would be installed under the Katherine Mine Road intersection parallel to Katherine Landing Access Road. Existing surface drainage features would be rehabilitated.

Typical Section One

The action alternative referred to as Typical Section One would widen the road from the current 22 feet to 28 feet—two 12-foot-wide travel lanes and two 2-foot-wide paved shoulders. Typical Section One would provide six formal (paved) pullouts and three informal (unpaved) pullouts.

Typical Section Two—Preferred Alternative

The Typical Section Two action alternative would widen the road from the current 22 feet to 32 feet—two 12-foot-wide travel lanes and two 4-foot-wide paved shoulders. Typical Section Two would provide six formal pullouts and two informal pullouts. The NPS selected Typical Section Two as the agency's Preferred Alternative.

Classification of Both Action Alternatives (DO 77-2)

Construction activities associated with these two action alternatives are classified as Class I actions (DO 77-2). According to DO 77-2, a Class I action "includes the location or construction of administrative, residential, warehouse and maintenance buildings, non-excepted parking lots or other manmade features, which by their nature entice or require individuals to occupy the site, are prone to flood damage, or result in impacts to natural floodplain values. Actions in this class are subject to the floodplain policies and procedures if they lie within the 100-year regulatory floodplain."

Floodplains Description

According to Federal Emergency Management Agency Flood Insurance Rate Maps (FIRMs), the proposed project crosses the 100-year floodplain (FIRM Nos. 04015C4460G and 04015C4455G). The unnamed wash associated with the 100-year floodplain crosses Katherine Landing Access Road approximately 0.23 mile north of the current Davis Dam Road intersection via a concrete box culvert with grouted riprap on the road embankment and gabion baskets along the wash banks near the road on the upstream side.
The unnamed wash flows into Lake Mohave above Davis Dam on the west side of Katherine Landing Access Road. According to the Environmental Compliance Specialist with Lake Mead National Recreation Area, washes in the project area, including the unnamed wash associated with the 100-year floodplain, carry flows only during localized storm events without any regularity or predictability. The 100-year floodplain in the project area is approximately 300 feet wide by 400 feet long (2.75 acres).

In addition to the paved roadway and associated dirt shoulders and pullout areas, the project is in the Mohave Desertscrub biotic community and supports vegetation that varies with terrain conditions. Sparse creosote bush *(Larrea tridentata)* is the dominant vegetation in the flat or gently rolling hills, and the rockier and steeper terrain supports dense brittlebush *(Encelia farinosa),* particularly near ephemeral washes.

Justification for Use of the Floodplain and Investigation of Alternative Sites

The purpose of the project is to enhance public safety and support a high-quality visitor experience by correcting deficiencies in road design and conditions. Because the purpose of the project is to improve Katherine Landing Access Road, all action alternatives include work within the 100-year floodplain where the floodplain crosses the road. The only alternative that would not result in impacts to the 100-year floodplain would be the No Action Alternative, which does not meet the project purpose and need. There is no practical alternative to improve the road design and conditions without impacting this floodplain.

Typical Section Two, the Preferred Alternative, would have a slightly greater impact to the 100-year floodplain than Typical Section One due to the construction of a slightly wider roadway. The difference in total roadway width between the two alternatives would be 4 feet.

Hydrologic Risk

Flood depths of the probable maximum flood in the project area are estimated at approximately 3 to 8 feet, and flood depths of the 100-year flood are estimated at approximately 1 to 6 feet. Conditions associated with flooding in the project area are not considered particularly hazardous, though the hazard increases near the boat ramp, where development such as motels, trailer camping areas, and other visitor use areas exist.

Katherine Landing Access Road is designed with culverts to convey the flow of water under the roadway; this flow could potentially destabilize the embankments. An unnamed wash that flows parallel to Katherine Landing Access Road for approximately 1.4 miles on the west side of the road has resulted in scour and roadway undercutting. This wash is not within a 100-year floodplain, and scour issues associated with the roadway would be

resolved as part of this project by armoring the portion of the wash near the road. Other drainage improvements would also be undertaken as part of the project, as described previously.

Mitigative Actions

Impacts to the floodplain would be minimal because project activities would occur along an existing roadway alignment and the extent of roadway widening would be minor. This project would not substantially modify the topography of the floodplain in the project area.

A culvert extension would be required in a channel associated with a 100-year floodplain. The existing culvert is of adequate size to convey flows under the road, and the culvert extension would retain the same size. Because the permanent improvement would be in the channel, this alternative would not substantially modify the topography of the designated 100-year floodplain in the project area. Temporary impacts to the 100-year floodplain would occur as construction equipment traverses the floodplain to access the unnamed wash for culvert extension activities. A temporary road across the floodplain would likely be required to access the wash. Following construction, the temporary road would be removed and the terrain returned to its original elevation.

An erosion and sediment control plan would be developed and implemented during construction to minimize disturbance to the natural environment, including floodplains, in the project area. In addition, the removal of native vegetation would be minimized to the extent practicable.

Conclusion

There is no practical alternative alignment to the action alternatives to improve the Katherine Landing Access Road. Either of the two action alternatives would improve public safety and visitor experience by correcting deficiencies in existing road design, improving pavement condition, and improving drainage and associated structures. Mitigation would be implemented, and regulations and policies complied with, to minimize impacts to floodplains and the surrounding environment during and after construction. Mitigation measures would include the following:

- Following construction, any temporary roads across the 100-year floodplain will be obliterated and the floodplain graded to match the surrounding terrain.
- Removal of native vegetation will be minimized to the extent practicable.
- All disturbed areas that would not be permanently incorporated into the transportation facility will be restored by seeding with native species, topsoil salvage and replacement, or a combination of both methods.

No long-term adverse impacts to floodplains would occur from implementing either of the action alternatives. Therefore, the National Park Service finds both action alternatives to be acceptable under Executive Order 11988 for the protection of floodplains.